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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,663	05/18/2001	Shinichiro Kawano	MATS:027	3648

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EXAMINER

JONES, JUDSON

ART UNIT PAPER NUMBER

2834

DATE MAILED: 04/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/719,663

Applicant(s)

KAWANO ET AL.

Examiner

Judson H Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11,14-22 and 25 is/are rejected.
- 7) ☒ Claim(s) 3,12,13,23,24,26 and 27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

Figures 2b and 19 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-17, 19, 26 and 27 are objected to under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims recite or depend on a claim which recites "a permanent magnet vibrating between said outer yoke and said inner yoke." While the magnet is located between the outer yoke and inner yoke, it vibrates in a direction perpendicular to a line drawn between the outer yoke and inner yoke. Applicant's claim language does not make clear the direction of the vibration being claimed.

Claim 24 is objected to under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is dependent on claim 18 and refers to "said yoke section divided." There is no antecedent basis for a divided yoke section in claim 18.

Claim Rejections - 35 USC § 102

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bhate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhate in view of Watanabe et al. Bhate discloses the linear motor comprising a tubular outer yoke 10, the inner yoke 12, a coil 20 and permanent magnets 28 but does not disclose the vibrator being made from iron and chrome. However, Watanabe et al. teaches making a yoke from a Fe—Cr alloy provide

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sufficient flux density, sufficient electrical resistivity and corrosion resistance. Since Bhate and Watanabe et al. are both from the same field of endeavor, it would have been obvious for one of ordinary skill in the art to have utilized a Fe—Cr alloy in the device of Bhate in order to provide sufficient flux density, sufficient electrical resistivity and better corrosion resistance than the cylindrical iron yoke of Bhate.

In regard to claim 7, see Watanabe et al. column 2 lines 1-11.

In regard to claim 8, see Watanabe et al. column 2 lines 15 and 16.

In regard to claim 9, see Watanabe et al. column 2 lines 10-19.

Claims 4, 5, 14, 18-20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhate in view of Aoyama et al. Bhate discloses the linear motor but does not disclose the resistance level of the yoke, which is described as being a cylindrical iron shell in column 3 lines 45-48. Since Aoyama et al. and Bhate are both from the same field of endeavor, and since Bhate does not provide details on the iron yoke used, it would have been obvious for one of ordinary skill in the art to utilize a yoke chosen from the materials taught by Aoyama et al. See Aoyama et al. column 9 lines 35-45 for examples of yokes with resistance levels greater than that recited by Applicant.

In regard to claim 5, all of the materials recited in Aoyama et al. column 3 lines 39-44 have a permeability more than 10 times that of vacuum.

In regard to claim 14, Aoyama et al. discloses a section made of a combination of insulating resin and thermoplastic resin as described in column 3 lines 44-46.

In regard to claims 18-20, Bhate discloses the linear motor but does not disclose either of the yokes being made of compressed material. However Aoyama et al. teaches forming a yoke

from magnetic metal particles in column 3 lines 44-46, which makes adjusting the resistivity, the permeability, the heat-conductivity and the hardness of the yoke easier.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhate in view of Negishi. Bhate discloses the linear motor but does not disclose a vibrator made from iron and silicon. However, Negishi teaches in column 2 lines 36-39 making the yoke of a motor from silicon steel, which has the advantages of being readily available, easy to work and relatively inexpensive. Since Negishi and Bhate are both from the same field of endeavor, it would have been obvious for one of ordinary skill in the art to have utilized silicon steel in the device of Bhate in order to reduce the cost of the device.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhate in view of Wang et al. and Barbrook. Bhate discloses the linear motor but does not disclose making the vibrator from nickel and iron. However, Wang et al. teaches making a yoke from these materials in column 6 lines 5-6, and Barbrook teaches the advantages of nickel and iron alloys in column 2 lines 33 and 34. Since Bhate and Wang et al. are both from the same field of endeavor, it would have been obvious for one of ordinary skill in the art to have utilized a nickel and iron alloy such as Permalloy for the vibrator of Bhate in order to achieve low hysteresis and high permeability for the device.

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhate in view of Lee. Bhate discloses the linear motor but does not disclose the motor being used in a compressor. However, Lee et al. teaches using a linear motor as a compressor in column 4 lines 51-55. Since Bhate and Lee et al. are both from the same field of endeavor, it would have been

obvious for one of ordinary skill in the art to have utilized the Bhate device as a linear compressor in situations where a linear compressor was needed.

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhate as modified by Aoyama as applied to claim 21 and further in view of Kishi. Bhate as modified by Aoyama et al. discloses the linear motor but does not disclose an insulating layer on the surface of the yoke section. However Kishi teaches insulating yokes in column 3 line 64 to column 4 line 14.

In regard to claim 22, see Kishi column 4 lines 3-9.

Claims 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama et al. in view of Lee et al. Aoyama et al. discloses a linear motor including a compression formed body made from metal magnetic particles but does not disclose the linear motor being used in a compressor. However, Lee et al. teaches using a linear motor as a compressor in column 4 lines 51-55. Since Aoyama et al. and Lee et al. are both from the same field of endeavor, it would have been obvious for one of ordinary skill in the art to have utilized the Aoyama et al. device as a linear compressor in situations where a linear compressor was needed.

Allowable Subject Matter

Claims 3, 12, 13, 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, provided the USC 112 rejections of the claims are overcome.

The following is a statement of reasons for the indication of allowable subject matter:
The prior art of record does not disclose or teach a linear motor with a vibrating element where

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adjacent permanent magnets have a slit between them as recited in claim 3. The prior art of record does not disclose or teach a linear motor with a vibrating element where a slit is provided on the side face of the vibrator as recited in claims 12 and 13. See Kikuchi et al. for a teaching of utilizing slits in a motor to reduce eddy current. The prior art of record does not disclose or teach a linear motor having a yoke section divided in a circumferential direction as recited in claims 23 and 24. The prior art of record does not disclose or teach an inner or outer yoke for a linear motor where the yoke is formed from a plurality of multi-layered blocks in an annular shape as recited in claims 26 and 27.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H Jones whose telephone number is 703-308-0115. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JHJ
April 5, 2002


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